Amendments to the Specification:

Please replace the paragraph beginning on page 5, line 27, with the following amended paragraph:

Figure ~~9~~ 6 is a functional block diagram depicting a Doppler ultrasound system in accordance with an embodiment of the invention.

Please replace the paragraph beginning on page 6, line 1, with the following amended paragraph:

Figures ~~10~~ 7 and ~~11~~ 8 are functional block diagrams depicting particular details of pulse Doppler signal processing circuitry included in the Doppler ultrasound system of Figure ~~9~~ 6.

Please replace the paragraph beginning on page 6, line 4, with the following amended paragraph:

Figures ~~12-15~~ 9-12 are process flow charts depicting particular operations performed by the pulse Doppler signal processing circuitry of Figures ~~10~~ 7 and ~~11~~ 8.

Please replace the paragraph beginning on page 16, line 6, with the following amended paragraph:

Note that the D1-D2 gap of flow information illustrated in Figure 5 occurs at a different place for 12.5 kHz compared to 15.625 kHz. This means that the high velocities which reside in the "gap" region for one PRF can be nevertheless observed with the second PRF. Maximum velocities in vasospasm and stenosis in general rarely exceed 480 cm/s. As a result, both of the high PRFs are capable of characterizing peak stenotic velocities with the spectrogram 108. The resulting image displayed on the Aiming Mode Displays 100, 200 for the different high PRFs will each have a region where no flow signals appear, as illustrated in Figure ~~7~~ 4.

Please replace the paragraph beginning on page 16, line 21, with the following amended paragraph:

Figure ~~9~~ 6 is a functional block diagram that depicts an ultrasound system 150 in accordance with an embodiment of the invention. The ultrasound system 150 produces the various display modes described above in connection with Figures 1-5 on an integrated flat panel display 152 or other desired display format via a display interface connector 154. The signal processing core of the Doppler ultrasound system 150 is a master pulse Doppler circuit 156 and a slave pulse Doppler circuit 158. The Doppler probes 160 are coupled with other system components by a probe switching circuit 162. The probe switching circuit 162 provides both presence-detect functionality and the ability to distinguish between various probes, such as by detecting encoding resistors used in probe cables or by other conventional probe-type detection. By providing both the master and slave pulse Doppler circuits 156 and 158, two separate ultrasound probes 160 may be employed, thereby providing unilateral or bilateral ultrasound sensing capability (such as bilateral transcranial measurement of blood velocity in the basal arteries of the brain). The master and slave pulse Doppler circuits 156 and 158 receive the ultrasound signals detected by the respective probes 160 and perform signal and data processing operations, as will be described in detail below. Data is then transmitted to a general purpose host computer 164 that provides data storage and display. A suitable host computer 164 is a 200 MHz Pentium processor-based system having display, keyboard, internal hard disk, and external storage controllers, although any of a variety of suitably adapted computer systems may be employed.

Please replace the paragraph beginning on page 17, line 19, with the following amended paragraph:

Figures ~~10~~ 7 and ~~11~~ 8 depict particular details of the master and slave pulse Doppler circuits 156 and 158. To the extent Figures ~~10~~ 7 and ~~11~~ 8 depict similar circuit structures and interconnections, these will be described once with identical reference numbers used in both Figures. Figure ~~10~~ 7 also depicts details concerning the input and output of audio information to and from the ultrasound system 150 via the microphone 170, the speakers 166,

and the audio output lines 168 & 172, the operations of which are controlled by the master pulse Doppler circuit 156.

Please replace the paragraph beginning on page 17, line 26, with the following amended paragraph:

At the transducer input/output stage, each of the pulse Doppler circuits 156 and 158 includes a transmit/receive switch circuit 175 operating under control of a timing and control circuit 176 (with the particular timing of operations being controlled by the timing and control circuit 176 of the master pulse Doppler circuit 156). The timing and control circuit 176 also controls operation of a transmit circuit 178 that provides the output drive signal causing the Doppler probes 160 (see Figure ~~9~~ 6) to emit ultrasound. The timing and control circuit 176 also controls an analog-to-digital converter circuit 180 coupled to the transmit/receive switch 175 by a receiver circuit 182. The function and operation of circuits 175-182 are well known to those skilled in the art and need not be described further.

Please replace the paragraph beginning on page 18, line 28, with the following amended paragraph:

Each of the digital signal processors P1-P4 is coupled with the host computer 164 (see Figure ~~9~~ 6) via a host bus 187 and control data buffer circuitry, such as corresponding FIFOs 188(1) - 188(4). This buffer circuitry allows initialization and program loading of the digital signal processors P1-P4, as well as other operational communications between the digital signal processors P1-P4 and the host computer. Each of the digital signal processors P2-P4 is coupled with an associated high-speed memory or SRAM 190(2) - 190(4), which function as program and data memories for the associated signal processors. In the particularly depicted signal processing chain of Figure ~~10~~ 7 or ~~11~~ 8, the digital signal processor P1 has sufficient internal memory, and no external program and data memory need be provided. Transmission of data from one digital signal processor to the next is provided by intervening data buffer or FIFO circuitry 192(2) - 192(4). The ultrasound data processed by the digital signal processor P4 is provided to the host computer 164 via data buffer circuitry such as a dual port SRAM 194.

Please replace the paragraph beginning on page 19, line 12, with the following amended paragraph:

Referring to Figure ~~10~~ 7, the digital signal processor P4 of the master pulse Doppler circuit 156 also processes audio input via the microphone 170, as well as controlling provision of the audio output signals to the speakers 166 and audio output lines 168, 172. P4 controls the audio output signals by controlling operations of an audio control circuit 196, which receives audio signals from both the master and the slave pulse Doppler circuits 156 and 158.

Please replace the paragraph beginning on page 19, line 18, with the following amended paragraph:

Referring to process flow charts shown in Figures ~~12-15~~ 9-12, a detailed description will now be provided of the operations performed by of each of the digital signal processors P1-P4 included in both the master and slave pulse Doppler circuits 156 and 158. Particular detailed calculations and numerical information are provided to disclose a current embodiment of the invention, but those skilled in the art will appreciate that these details are exemplary and need not be included in other embodiments of the invention.

Please replace the paragraph beginning on page 19, line 26, with the following amended paragraph:

Referring to Figure ~~12~~ 9, the operations of digital signal processor P1 are as follows:

Please replace the paragraph beginning on page 22, line 6, with the following amended paragraph:

Referring to Figure ~~13~~ 10, the operations of digital signal processor P2 are as follows:

Please replace the paragraph beginning on page 23, line 6, with the following amended paragraph:

Referring to Figure ~~14~~ 11, the operations of digital signal processor P3 are as follows:

Please replace the paragraph beginning on page 25, line 13, with the following amended paragraph:

Referring to Figure ~~15~~ 12, the operations of digital signal processor P4 are as follows:

Please replace the paragraph beginning on page 27, line 14, with the following amended paragraph:

Those skilled in the art will appreciate that the invention may be accomplished with circuits other than those particularly depicted and described in connection with Figures ~~9-11~~ 6-8. These figures represent just one of many possible implementations of a Doppler ultrasound system in accordance with the invention. Likewise, the invention may be accomplished using process steps other than those particularly depicted and described in connection with Figure ~~12-15~~ 9-12.

Please replace the paragraph beginning on page 27, line 20, with the following amended paragraph:

Those skilled in the art will also understand that each of the circuits whose functions and interconnections are described in connection with Figures ~~9-11~~ 6-8 is of a type known in the art. Therefore, one skilled in the art will be readily able to adapt such circuits in the described combination to practice the invention. Particular details of these circuits are not critical to the invention, and a detailed description of the internal circuit operation need not be provided. Similarly, each one of the process steps described in connection with Figures ~~12-15~~ 9-12 will be understood by those skilled in the art, and may itself be a sequence of operations that need not be described in detail in order for one skilled in the art to practice the invention.